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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/854,327	05/11/2001	Daniel Marcu	06666-107001	7660

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EXAMINER	
SPOONER, LAMONT M	
ART UNIT	**PAPER NUMBER**
2654	

DATE MAILED: 09/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/854,327	MARCU, DANIEL	
	Examiner	Art Unit	
	Lamont M. Spooner	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/6,8/ 03,7/23/01,*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1-33 in the reply filed on 4/13/2005 is acknowledged.

Specification

2. The disclosure is objected to because of the following informalities:

3. . On page 19, lines 3, 4, "strong" should probably be - -string- -, "work" should probably be - -word- -.

Appropriate correction is required.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 5-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 5-12, "the current target language translation" has ambiguity issues. The Examiner is unable to clearly discern which current target language translation the applicant is referring to, as there are two current target language translations in claim 1,

thus rendering claims 5-12, indefinite, unclear, and failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 6, line 7, "high", the Examiner has no reference or basis based upon the disclosure as to the range of how high, or what separates high from low, rendering the claim indefinite.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-5, 8-11, 15, 18-21, 25-31, and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Chanod (US 6,393,389).

As per **claims 1, 15 and 27**, Chanod teaches a machine translation decoding method comprising:

receiving as input a text segment in a source language to be translated into a target language (Fig. 1 item 10 and 22);

generating an initial translation as a current target language translation (Fig. 1 item 14, his "translation A-0");

applying one or more modification operators to the current target language translation to generate one or more modified target language translations (C.18.lines 6-

14-his disambiguation item, and lines 18-24-his insertions as modifications to the target language, C.18.lines 60, 61);

determining whether one or more of the modified target language translations represents an improved translation in comparison with the current target language translation (C.18.lines 10, 11-his confidence level, lines 36-39-his rankings interpreted as improved translations);

setting a modified target language translation as the current target language translation (C.18.lines 36-39-his selections are inherently the current target language translation as it is current in translation once translated); and

repeating said applying, said determining and said setting until occurrence of a termination condition (C.18.lines 48, 49-his completion, inherently requires a termination condition, lines 38, 39-"selected translation 1 through selected translation N, interpreted as iterations, where N is less than equal to M" as a termination condition).

As per **claims 2 and 18**, Chanod teaches claim 1, and further teaches wherein the text segment comprises a clause, a sentence, a paragraph or a treatise (C.11.lines 13-17-his sentence).

As per **claim 3**, Chanod teaches claim 1, and further teaches wherein generating an initial translation comprises generating a gloss (C.16.lines 55-61).

As per **claim 4**, Chanod teaches claim 3, and further teaches wherein the gloss is a word-for-word gloss or a phrase-for-phrase gloss (Fig. 6 items 312, 314, 316, are separated interpreted as the word for word gloss, C.17.lines 66, 50, 57-65, C.18.line 6-his tokens "A, B, C, and D").

As per **claim 5**, Chanod teaches claim 1, and further teaches wherein applying one or more modification operators comprises changing in the current target language translation the translation of one or two words (Fig. 6 items 318, 362, 366-token D is changed, his translation 1...translation M, each selection as the current translation, C.18.lines 6-14, C.20.line 10, 11-his new translation).

As per **claim 8**, Chanod teaches claim 1, and further teaches wherein applying one or more modification operators comprises modifying an alignment between the source language text segment and the current target language translation by swapping non-overlapping target language word segments in the current target language translation (C.19.lines 53, 54-his reordering translations, as swapping in order to modify..., lines 56-58-his different chunks as non-overlapping...).

As per **claim 9**, Chanod teaches claim 1, and further teaches wherein applying one or more modification operators comprises modifying an alignment between the source language text segment and the current target language translation by (i) eliminating a target language word from the current target language translation (C.25.lines 20-21-his "work force" is eliminated from the current translation) and (ii) linking words in the source language text segment (C.25.lines 2, 9-11-his Rank Xerox as a single token).

As per **claims 11, 29 and 31**, Chanod teaches claim 1, and further teaches wherein determining whether one or more of the modified target language translations represents an improved translation in comparison with the current target language translation comprises calculating a probability of correctness for each of the modified

target language translations (C.18.lines 10, 11-his confidence level, lines 36-39-his rankings interpreted as improved translations, his confidence level interpreted as the calculated probability of correctness).

As per **claims 10, 26 and 33**, claim 10 sets forth limitations similar to claims 5, and 6, and is thus rejected for the same reasons and under the same rationale.

As per **claims 19, 20, 21, 28**, claims 19-21 and 28 set forth limitations similar to claims 1, 3, and 4 and are thus rejected for the same reasons and under the same rationale.

As per **claim 25**, Chanod teaches claim 15, and further teaches iteratively modifying the translation comprises performing at each iteration one or more modification operations on the translation (Fig. 6 item 362-his translations 1-translation M, C.18.lines 34-36).

As per **claim 30**, Chanod teaches claim 29, and further teaches wherein the module for determining a probability of correctness for a translation comprises a language model (Fig. 6 items 318, 362-inherent in modeling the language and determining the translation, C.13.lines 26-65-his confidence level as the probability of correctness, translating finite state ...and lexicons as the language modeling) and a translation module (C.13.lines 26-65-his routines as translation modules).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 6, 7, 12-14, 16, 17, 22-24, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chanod in view of Berger (US 6,304,841, which properly incorporates Brown et al, Brown, US 5,477,451 by reference).

As per **claims 6 and 7**, Chanod teaches claim 1, and further teaches wherein applying one or more modification operators comprises (i) changing in the current target language translation a translation of a word (see claim 5) but lacks concurrently (ii) inserting another word at a position that yields an alignment of highest probability between the source language text segment and the current target language translation , the inserted other word having a high probability of having a zero-value fertility.

However, Berger teaches changing in the current target language translation a translation of a word (Fig. 4 his "superior", Fig. 5 his "greater") concurrently (ii) inserting another word at a position that yields an alignment of highest probability between the source language text segment and the current target language translation (Fig. 5. his "than" as the inserted word, C.2.lines 38-41-his most probable alignment, and Brown, Fig. 38, his les6-C.31-C33.line 52-his maximum entropy teaches the highest probability of alignment), the inserted other word having a high probability of having a zero-value fertility (Brown Fig. 38 his les6 interpreted as having zero fertility, and inserted in the English to French translation, C.64.lines 25-28-his fertility 0), and deleting from the current target language translation a word having a zero-value fertility, (Brown, C.64.lines 45-51-his "there is nothing about..." is interpreted to be the deleted words from the current translation, and his zero-fertility, claim 7. Therefore, at the time of the

invention, it would have been obvious to modify Chanod's alignment with Berger's alignment. The motivation for doing so would have been to determine the most probable alignment (C.2.lines 40, 41-Berger).

As per **claims 12-14, and 32**, Chanod teaches claim 1, but lacks explicitly teaching wherein the termination condition comprises a determination that a probability of correctness of a modified target language translation is no greater than a probability of correctness of the current target language translation. However, Berger teaches wherein the termination condition comprises a determination that a probability of correctness of a modified target language translation is no greater than a probability of correctness of the current target language translation (C.15.lines 7-C.16.line31-his maximum entropy as determining a probability of correctness, the last iteration being the most/or maximum probability of being correct, by definition, see maximum entropy and gain discussion C.16-C.28, C.23.line 36, 40-48-his termination condition, C.28.line 45-his termination condition, the Examiner interprets, the modifying, gain and feature improvements to be terminated, once the maximum entropy is achieve, or the probability of correction, or correct alignment can not be further bettered. Furthermore, the Examiner takes Official Notice that in repeating (algorithmic) processes, terminating when there is no improvement of the process, termination upon a completion of a predetermined number of iterations, and termination upon a lapse of a predetermined amount of time was well known to one ordinarily skilled in the art at the time of the imvention. Therefore, at the time of the invention, it would have been obvious to modify Chanod's termination of improving his sequence of translations including modification

with a termination condition, including those listed above. The motivation for doing so would have been to have a stopping point for an algorithm based upon if the features improve the likelihood of correctness, (C.23.lines 41-47), time-out, or predetermined iterations, otherwise the algorithm could run endlessly.

As per **claims 16, 17**, Claims 16 and17 set forth limitations similar to claims 12 and 13 and are thus rejected for the same reasons and under the same rationale.

As per **claim 22**, Chanod further teaches wherein the approximate target language translation comprises a predetermined translation selected from among a plurality of predetermined translations (C.13.lines 33-36-his translations memories...received).

As per **claims 23 and 24**, Chanod lacks explicitly teaching the method implements a greedy algorithm, wherein iteratively modifying the translation comprises incrementally improving the translation with each iteration.

. However, Berger teaches the method implements a greedy algorithm and iteratively modifying the translation comprises incrementally improving the translation with each iteration (C.23.lines 58, 59-his greedier algorithms, C.24-28-details the algorithms and method, wherein each iteration improves the translation, C.15.lines 7-C.16.line31-his maximum entropy as determining a probability of correctness, the last iteration being the most/or maximum probability of being correct, claim 24, by definition, see maximum entropy and gain discussion C.16-C.28). Therefore, at the time of the invention, it would have been obvious to modify Chanod's repetitive algorithm with the greedy algorithm of

Berger. The motivation for doing so would have been to have a practical greedy algorithm (C.23.lines 58, 59), which improves the translation with each iteration.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Poznanski et al. (6,360,196, 6389,387) teaches glossing, and ranking.
- Doi et al. (4,787,038) teaches termination of iteration when an improved translation isn't available.
- Tominaga (5,311,429) teaches termination of iteration when an improved translation isn't available.
- Berger (5,510,981) teaches probability of correctness, iterative improvements of translation, termination conditions of the iterations.
- Fukumochi et al. (5,644,774) teaches improving translations, iteratively.
- McCarley et al. (6,092,034) teaches inserting words for proper alignment, and utilizing the fertility and an integral part of the alignment process, wherein a probability of correctness is determined.
- Lange (6,236,958) teaches a termination condition wherein a determination that a probability of correctness of a modified target language translation is no greater than a probability of correctness of the current target language translation.
- Kuo (6,289,302) teaches determining wherein a translation cannot be improved.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamont M. Spooner whose telephone number is 571/272-7613. The examiner can normally be reached on 8:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571/272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lms
8/31/05

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SUPERVISORY PATENT EXAMINER